Lucknow Cantonment Board

Question Paper for Assistant Engineer (Civil)

Date: 18.12.2022 **Time: 9.30 am to 11.30am**

- An objective type of exam where candidates must mark the correct choice of answer in an OMR answer sheet.
- This question paper consists of 18 pages.
- The question paper for written test is in English only and the 100 questions carrying equal marks is of Objective type. Duration of exam is 02 hours (120 minutes). Answer to the questions must be marked on OMR answer sheet. **There is 0.33 Negative marking for wrong answers**.
- In the answer sheet, use BLACK BALL POINT pen only for Name, name of the post, Roll number, application number, answers, sign, etc.
- If the answer sheet is **NOT** numbered, immediately get the answer sheet replaced from the invigilator.
- Answer sheet will have space for sign/initials of the candidate and the invigilator.
- Immediately after the exam starts, please check if the question paper has any unprinted or torn or missing pages or items. In such a case, you must get the complete question paper replaced.
- Space is provided for rough work in the question paper on last page.
- The answer sheet is **NOT** supposed to be folded or mutilated in any way.
- You are also **NOT** supposed to write anything on the reverse of the answer sheet.
- The OMR is going to be evaluated by a computer. So, you must take extreme caution while marking in the answer sheet. Since you cannot erase the answers once marked (with a black ball point), please take care to mark it carefully.
- The questions will be printed in the question paper. It contains questions under each of which four choices will be given. You must mark the answer in the Answer Sheet (OMR Sheet) against the appropriate serial number.
- You must mark the correct answer choice in the answer sheet by completely darkening the circle against the correct choice (a/b/c/d) with a black ball point pen- only.
- Candidate must handover OMR answer sheet to invigilator after completion of exam. Before handing over OMR answer sheet to invigilator, please check admit card number correctly entered or **NOT**.

1	Which one is largely correct about G20. It accounts for A. around 80% of gross world product (GWP), 75% of international trade, two-thirds of the global population, and 60% of the world's land area B. around 75% of gross world product (GWP), 80% of international trade, 60% of the global population, and two-thirds % of the world's land area C. around 80% of gross world product (GWP), 75% of international trade, 60% of the global population, and two-thirds of the world's land area D. around 75% of gross world product (GWP), 80% of international trade, two-thirds of the global population, and 60% of the world's land area
2	Each of the values P, Q, R, S and T is a unique integer (i.e number from 1 to 9), / and PQRST * 4 = TSRQP, then R equal to A. 6 B. 9 C. 8 D. 7
3	Influenza: Virus: :Typhoid :???? A. Bacillus B. Bacteria C. Protozoa D. Parasite
4	Choose the correct sentence. A. Would you like a glass of water? B. Do you like a glass of water? C. Would you like the glass of water? D. Do you like the glass of water?
5	Life is related to Autobiography in the same way as witness is related to…. A. Papers B. Truth C. Documents D. Acceptance
6	If PAINT is coded as 74128 and EXCEL is coded as 93596, then how would you encode ACCEPT? A. 554978 B. 547978 C.455978 D. 735961
7	Statements: In a one-day cricket match, the total runs made by a team were 200. Out of these 160 runs were made by spinners. Conclusions: I) 80% of the team consists of spinners. II) The opening batsmen were spinners. A. Only conclusion I follows B. Only conclusion II follows C. Neither I nor II follows D. Either I or II follows
8	Antonym of Abrasive? A. Mild B. Sharp C. Nasty D. Hurtful

9	A, B, C, D, E, F and G are members of a family consisting of four adults and three children, two of whom, F and G are girls. A and D are brothers and A is a doctor. E is an engineer married to one of the brothers and has two children. B is married to D and G is their child. Who is C? A. E's daughter B. F's father C. G's brother D. A's son
10	Consider the following statements with reference to the Delimitation Commission: 1. It is appointed by the Chief Election Commissioner of India. 2. Its orders have the force of the law and cannot be questioned by any court. Which of the above statements is/are correct? A. 1 only B. Neither 1 nor 2 C. Both 1 and 2 D. 2 only
11	Consider the following statements regarding Money Laundering: 1. It refers to the conversion or misrepresentation of money which has been illegally obtained by unlawful sources and methods. 2. It is a criminal offence in India as per the statutory provisions of the Prevention of Money Laundering Act, 2002. 3. PMLA was enacted in response to India's global commitment (Vienna Convention). Which of the statements given above is/are correct? A. 1 and 2 only B. 1, 2 and 3 only C. 1 and 3 only D. 2 and 3 only
12	Which one of the following is correct regarding L-shaped Recovery? A. Fast rate of recovery, with persistent employment and sharp economic growth. B. Slow rate of recovery, with persistent employment and sharp economic growth. C. Slow rate of recovery, with persistent employment and stagnant economic growth D. Slow rate of recovery, with persistent unemployment and stagnant economic growth.
13	United Nations Framework Convention on Climate Change (UNFCCC) is the parent treaty of which of the following? A. Paris Agreement B. Kyoto Protocol C. Both A and B D. None of the above

14	Which of the following are the components of Balance of Payment (BoP)? 1. Current account 2. Capital Account 3. Errors and Omissions 4. Changes in Forex Reserves Select the correct answer using the following options: A. 1 and 2 only B. 1, 2, 3 and 4 C. 2, 3 and 4 only D. 1, 2 and 3 only
15	Consider the following statements regarding Uniform Civil Code (UCC): 1. Article 44 says that the state shall endeavour to secure a UCC for its citizens. 2. None of the Indian states has implemented UCC so far. Which of the statements given above is/are correct? A. 1 only B. 2 only C. Both 1 and 2 D. Neither 1 nor 2
16	Consider the following statements: 1. The dual system of police administration was introduced in Colonial India. 2. The Police Commissionerate system was introduced in India before the enactment of Police Act in 1861. 3. The Police Commissionerate System was first introduced in Madras presidency. Which of the statements given above is/are **NOT** correct? A. 1 and 2 only B. 2 only C. 1 and 3 only D. 3 only
17	Data Governance Quality Index (DGQI) is published by A. Ministry of Home Affairs B. Ministry of Finance C. NITI Aayog D. Ministry of Information and Broadcasting
18	Which of the following is/are **NOT** an official language of India? 1. Sindhi 2. Bodo 3. Santhali 4. Bhojpuri Select the correct answer using the code given below: A. 4 only B. 1 and 2 only C. 3 and 4 only D. 1 only
19	A car covers 715 km at a constant speed. If the speed of the car would have been 10 km/hr more, then it would have taken 2 hours less to cover the same distance. What is the original speed of the car? A. 45 km/hr B. 50 km/hr C. 55 km/hr D. 65 km/hr

20	The milk and water in two vessels A and B are in the ratio 4: 3 and 2: 3 respectively. In what ratio, the liquids be mixed in both the vessels so that the new liquid contains half milk and half water? A. 7: 5 B. 1: 2 C. 2: 1 D. 6: 5
21	A circular wire of radius 42 cm is cut and bent in the form of a rectangle whose sides are in the ratio of 6: 5. The smaller side of the rectangle is A. 30 cm B. 60 cm C. 72 cm D. 108 cm
22	The marked price of a table is ₹ 3000 and is available at successive discounts of 20 % and 10 % respectively. If there is an additional discount of 5 % on cash payment, then what is the cash price of the table? A. ₹ 2400 B. ₹ 2160 C. ₹ 2100 D. ₹ 2052
23	A cricketer has a certain average for 9 innings. In the tenth inning, he scores 100 runs, thereby increasing his average by 8 runs. His new average is A. 20 runs B. 24 runs C. 28 runs D. 32 runs
24	A sum of money was divided between A, B and C, such that when A gets Rs 1 then B gets 65 paise and C gets 40 paise. If C's share be ₹ 40 then what is that sum of money? A. ₹ 82 B. ₹ 126.15 C. ₹ 105 D. ₹ 205
25	A and B can do a work in 10 days. B and C in 12 days while C and A in 15 days. How long would they take if all the three work together? A. 8 days B. 4 days C. 7 days D. 5 days
26	To save itself ___ predators, animals ____ the part of their body at will and this is known as autotomy. A. From, leave B. With, cut off C. By, shed D. From, cast off
27	A _____ is a simple machine that is used as to transfer applied forces into much larger forces. A. Wedge B. Beam C. Pillar D. Bridges

28	If two forces acting at a joint are **NOT** along the straight line, then for the equilibrium of the joint a) one of the forces must be zero b) each force must be zero c) forces must be equal and of the same sign d) Forces must be equal in magnitude but opposite in sign.
29	What is a free-body diagram? A. It's a sketch of a moving body that shows internal forces of the body and reaction forces B. It's a sketch of an undisturbed body that shows external forces of the body C. It's a sketch of an isolated body that shows external forces of the body and reaction forces D. It's a sketch of a body in motion that shows bending forces of the body
30	A short column of external diameter of 250 mm and internal diameter of 150 mm carries an eccentric load of 1000 kN. The greatest eccentricity which the load can have without producing tension anywhere is A. 20 mm B. 37.5 mm C. 31.25 mm D. 42.5 mm
31	In a thin cylindrical shell, the ratio of longitudinal stress to hoop stress is A. 2 B. 1 C. 0.5 D. 4
32	If all the dimensions of a prismatic bar are doubled, then the maximum stress produced in it under its own weight will A. Decrease B. Remain unchanged C. Increase to four times D. Increase to two times
33	Rheological or flow equation of fresh concrete is expressed by A. Bingham model B. Newton's model C. Le Chatellier's model D. Neville model
34	A beam of rectangular cross-section is 100 mm wide and 200 mm deep. If the section is subjected to a shear force of 20 KN, then the maximum shear stress in the section is A. 1 N/mm^2 B. 1.125 N/mm^2 C. 1.33 N/mm^2 D. 1.5 N/mm^2

35	The slump recommended for mass concrete is about A. 100 mm to 125 mm B. 25 mm to 50 mm C. 50 mm to 100 mm D. 125 mm to 150 mm
36	Percentage of silica in good brick earth lies between A. 50 to 60 % B. 20 to 30 % C. 5 to 10 % D. 70 to 80 %
37	The attrition test on stones is performed A. To determine the crushing strength of the stone B. For assessing the resistance of stone to the sun, rain, wind etc. C. For determining the rate of wear of stone due to ornamental work should be soft D. To ascertain the stability of the stone when exposed to acid fumes
38	A single action steam hammer weighing 22.5 kN and falling through a height of 1.2 m drives a pile. If the final set is 12.5 mm, then according to Engineering News formula A. Ultimate bearing capacity of the pile is 120 kN B. Ultimate bearing capacity of the pile is 300 kN C. Allowable load for the pile is 120 kN D. Allowable load for the pile is 300 kN
39	According to IS specifications, the minimum depths of foundation in sand and clay should be respectively A. 800 mm and 900 mm B. 600 mm and 700 mm C. 1 m and 800 mm D. 1 m and 1.2 m
40	A triangular channel section is most economical when each of its sloping sides is inclined to the vertical at angle of A. 75^0 B. 45^0 C. 60^0 D.30^0

41	The average composition of Municipal solid waste is: A. 30% organic, 20% inert & 50% recyclable B. 20% organic, 60% inert & 20% recyclable C. 41% organic, 40% inert & 19% recyclable D. 19% organic, 41% inert & 40% recyclable
42	Read the comprehension and answer the following question: The United Nations was created by a charter signed by delegates of 50 countries on 26 June 1945. The headquarters of the UN is in New York City. Its official languages are Chinese, English, French, Russian and Spanish. The UN is an international organization that works for world peace and security and for the betterment of all mankind. There are 6 major organs of the UN that carry on the work of the organization. These 6 major organs are The General Assembly, the Security Council, the Economic and Social Council, the Trusteeship Council, the International Court of Justice and the Secretariat According to the passage, the charter of the United Nations _____. A. was created in New York B. established its existence C. was for world peace D. helped mankind
43	If the average Centre to Centre spacing of vehicles is 20 metres, then the basic capacity of a traffic Lane at a speed of 50kmph is A. 2500 vehicles per day B. 2500 vehicles per hour C. 2000 vehicles per hour D. 1000 vehicles per hour
44	Which of the following shapes is preferred in valley curve? A. Simple parabola B. Cubic parabola C. Spiral D. Lemniscuses
45	For water bound macadam road in localities of heavy rainfall, the recommended value of camber is A. 1 in 33 B. 1 in 30 C. 1 in 48 D.1 in 60

46	Who is the Chairperson of the Parliamentary Standing Committee on Information and Technology, that has started working on Aarogya Setu app? A. Prakash Javadekar B. Anand Sharma C. Kalraj Mishra D. Shashi Tharoor
47	Which organisation has launched a new initiative to explore sandalwood and bamboo tree plantation? A. Small Farmers Agribusiness Consortium B. National Institute of Agricultural Marketing C. Khadi and Village Industries Commission D. Indian Council of Agricultural Research
48	The foundation of the Finance commission is laid down under which of the given articles? A. Article 231 B. Article 28 C. Article 263 D. Article 202
49	In which part of the Indian Constitution, we find the provisions relating to citizenship? A. Part II B. Part V C. Part VI D. Part IV
50	Which Article of the Indian Constitution describes the Taxes are levied and collected by the centre but distributed between the Centre and the states? A. Article 270 B. Article 322 C. Article 318 D. Article 251
51	On which date the government of India adopted the National Anthem of the country? A. January 24, 1950 B. July 22, 1947 C. January 26, 1950 D. November 24, 1949
52	Which is the Neolithic site of North-East India? A. Chirand B. Sarutaru C. Senuar D. Taradih
53	If the gravitational acceleration at any place is doubled, the weight of a body, will a) be reduced to half b) **NOT** be affected c) be doubled d) none of these

54	The incomes of A, B, and C are in the ratio 3: 7: 4 and their expenses in the ratio 4 : 3: 5. If A saves Rs. 300 out of an income of Rs. 2,400, the savings of B and C are: A. Rs. 4.025 and Rs. 575 B. Rs. 1.575 and Rs 2.625 C. Rs. 2.750 and Rs. 1.525 D. Rs. 3.725 and Rs. 1.525
55	The average speed of a bus is one third of the speed of a train. The train covers 1125 km in 15 hours. How much distance will the bus cover in 36 minutes? A. 15 km B. 18 km C. 12 km D. 20 km
56	Select the correct combination of mathematical signs that can sequentially replace the * signs and make the equation correct. 68 * 138 * 23 * 54 * 20 A. x, +, =, ÷ B. =, x, +, ÷ C. x, +, -, = D. +, ÷, -, =
57	Examine the following relationship among members of a family of six person--- A, B, C, D, E and F. 1. The number of males equals that of females. 2. A and E are sons of F. 3. D is the mother of two, one boy and one girl. 4. B is the son of A. 5. There is one married couple in the family at present. Which one of the following inferences can be drawn from the above? A. A is the husband of D. B. A, B and C are all females. C. D is the granddaughter of F. D. E and F are children of D.
58	Which of the following statements with reference to isogonic line are correct in magnetic declination? 1. It is drawn through the points of same declination. 2. It does **NOT** form complete great circle. 3. It radiates from north and south magnetic regions and follow irregular paths. A. 1 and 2 only B. 1 and 3 only C. 2 and 3 only D. 1, 2 and 3

59	Which of the following factors are affecting critical shear stresses? 1. Purity of metals reduces the critical shear stress. 2. Surface films greatly enhance the critical shear stress. 3. Rise in temperature. 4. Rate of deformation and the extent of initial deformation also help in raising the critical shear stress. A. 1, 2 and 3 B. 1, 2 and 4 C. 1, 3 and 4 D. 1, 2, 3 and 4
60	Which one of the following statements is correct regarding ductile fracture? A. Fractured surfaces are crystalline in appearance. B. There is virtually no reduction in cross-sectional area during fracture, C. Fracture takes place after necking with little sound. D. Percentage elongation is about 60% prior to fracture occurs.
61	A section line AB appears to be 10.16 cm on a photograph for which the focal length is 16 cm. The corresponding line measures 2.54 cm on a map, which is to a scale 1/50,000. The terrain has an average elevation of 200 m above mean sea level. The flying altitude of the aircraft above mean sea level during photograph will be A. 1800 m B. 2000 m C. 2200 m D. 2400 m
62	Electrostatic precipitators are used for removal of 1. Gaseous contaminants 2. Liquid contaminants 3. Particulate contaminants A. 1 and 2 B. 2 only C. 1, 2 and 3 D. 3 only
63	When chlorine is dissolved in water, it reacts to form hypochlorous acid and hypochlorite ions. At pH < 5, chlorine exists in water as A. Elemental or molecular chlorine B. Remains in the form of hypochlorous acid C. Remains in the form of hypochlorite ions D. Remains in the form of both hypochlorous acid and hypochlorite ions

64	Hydraulic efficiency of Francis turbine is A. Inversely proportional to velocity of whirl at inlet and directly proportional to net head on turbine. B. Directly proportional to velocity of whirl at inlet and net head on turbine. C. Inversely proportional to velocity at inlet and net head on turbine. D. Directly proportional to velocity of whirl at inlet and inversely proportional to net head on turbine.
65	A turbine develops 10000 kW power under a head of 28 m at 169 rpm. The specific speed of the turbine will be nearly A. 604 rpm B. 600 rpm C. 20000 rpm D. 1825 rpm
66	Which section of Cantonment Act, 2006 deals with Constitution of Cantonment Boards A. Section 10 B. Section 11 C. Section 12 D. Section 14
67	Normal consistency of the cement is determined by: A. Le Chatelier Apparatus B. Rebound Hammer C. Vicat's Needle D. None
68	In a groundwater field test, a tracer took 9 hours to travel between two observation wells which are 63 m apart. The difference in water table elevations in these wells was 0.63 m. The volume of the void of the aquifer is 50% of the total volume of the aquifer. What is the hydraulic conductivity of the aquifer, if the dynamic viscosity of water is 1.995×10^{-3} Ns/ m^2? A. 583.3 m/hr B. 5833.33 mm/minute C. 5.83 cm/s D. All the above
69	What will be the average shear stress in the plate if the force of 110 KN is required to make a hole in 8 mm thick plate of using a punch of 20 mm diameter? A. 220 MPa B. 320 MPa C. 410MPa D. 140 MPa

70	A 25cm brick masonry wall is to be provided with a reinforced concrete footing on site having soil with safe bearing capacity of 189 kN/m^2, unit weight of 21 kN/m^3 and angle of shearing resistance of 30°. The depth of footing will be nearly A. 0.4 m B. 1 m C. 0.8 m D. 0.6 m
71	As per IS 456:2000 the minimum thickness at the edge for footing on soils and or piles respectively are A. 100 mm and 150 mm B. 200 mm and 300 mm C. 150 mm and 300 mm D. None of these
72	If b is the wheel track of a vehicle and h is the height of centre of gravity above road surface, then to avoid overturning and lateral skidding on a horizontal curve, the centrifugal ratio should always be A. less than b/2h and less than co-efficient of lateral friction B. less than b/2h and greater than co-efficient of lateral friction C. greater than b/2h and less than co-efficient of lateral friction D. greater than b/2h and greater than coefficient of lateral friction
73	Consider the following statements: 1. Moisture introduces capillary effect in a sandy soil leading to apparent increas in angle of internal friction. 2. Organic matter increases the permeability of a soil. 3. Permeability of a soil decreases as the effective stress acting on the so increases. 4. Water is in tension in capillary zone. Which of the above statements are CORRECT? A. 1, 2, 3 and 4 B. 2 and 3 C. 3 and 4 D. 1, 3 and 4
74	What is the BOD of a wastewater sample when diluted by 0.72%, produces a oxygen consumption of 3.5 mg/l at 20 °C? A. 485 mg/1 B. 250 mg/l C. 487 mg/l D. 486 mg/1

75	A standard activated sludge plant is built to process 15,000 litres of sewage per day at a BOD level of 350 mg/l for settled sewage. The F/M ratio is 0.35, the MLSS is 3500 mg/l, and the effluent BOD is 22 mg/l. The sludge's hydraulic retention period will be A. 7 h B. 4h C. 6 h D. 2 h
76	A car driver leaves Bangalore at 8.30 A.M. and expects to reach a place 300 km from Bangalore at 12.30 P.M. At 10.30 A.M he finds that he has covered only 40% of the distance. By how much he has to increase the car's speed to keep up his schedule? A. 45kmph B. 30 kmph C. 35 kmph D. 40 kmph
77	Electron microscope works on which of the following principles? A. Optical interference B. Wave Nature of electrons C. Motion of charged particle in electromagnetic fields D. Faraday's law of Electromagnetic induction
78	The surface area of a cube is $13.5cm^{3.}$ What is the length (in mm) of its diagonal? A. $2\sqrt{3}$ B. $1.5\sqrt{3}$ C. 1.5 D. 2
79	The territory of Porus who offered strong resistance to Alexander was situated between the rivers of A. Sutlej and Beas B. Jhelum and Chenab C. Ravi and Chenab D. Ganga and Yamuna
80	Pick up the assumption for the design of a pre-stressed concrete member from the following: A. A transverse plane section remains a plane after bending B. During deformation limits, Hook's law is equally applicable to concrete as well as to steel C. Variation of stress in reinforcement due to changes in external loading is negligible D. All the above

81	The lieutenant governor of Bengal at the time of partition of Bengal was A. Sir Andrew Fraser B. H H Risley C. Brodrick D. A T Arundel
82	Which is the most abundant metal in the Earth's crust? A. Iron B. Silicon C. Copper D. Aluminium
83	Who was the first tirthankar of Jainism? A. Mahavira B. Parshvanatha C. Rishabhanatha D. Kashinath.
84	Geological Survey of India (GSI) has approved to set up India's first Geo-Park in which state? A. Maharashtra B. Madhya Pradesh C. Goa D. Telangana
85	Which of the following has become the first state in the country to have dedicated semiconductor policy? A. Gujarat B. Karnataka C. Uttar Pradesh D. Tamil Nadu
86	The capital of Greece is…. A. Warsaw B. Ottawa C. Oslo D. Athens
87	The largest river (in terms of volume of water it carries) is…. A. Amazon B. Mississippi Missouri C. Nile. D. Yangtze
88	He told me that he …….. Watching the movie. A. is finished B. was finished C. **NOT** finished D. had finished

89	You are required to choose the correct meaning of the idiom or phrase given underlined in the sentence. Spill the beans A. Everyone gets a chance eventually B. As a low priority C. To tell people about someone's secrets D. Once in a life-time
90	The weight of a pycnometer containing 400 g sand and water full to the top is 2150 g. The weight of the pycnometer full of clean water is 1950 g. If the specific gravity of the soil is 2.5, the water content is A. 20 % B. 10 % C. 15 % D. 25 %.
91	As per Indian standard code of practice for prestressed concrete (IS 1343: 1980) the minimum grades of concrete to be used for post-tensioned and pre-tensioned structural elements are respectively A. M20 for both B. M30 and M40 C. M15 and M20 D. M40 and M30
92	In an under-reinforced one-way slab with effective depth 100 mm, the main steel is provided as 10mm bars at 200 mm centre to centre. The moment of resistance of the slab for M-20 grade concrete and Fe-415 steel will be: A. 10 KN/m B. 13 KN/m C. 27.6 KN/m D. 29.8 KN/m
93	Specific gravity of bitumen is: a) 1.09 b) 0.88 c) 1.41 d) 0.72
94	In a CBR test, the load sustained by a remoulded soil specimen at 5 mm penetration is 120 kg. the CBR value of the soil will be A. 9.2% B. 7.3% C. 2.4% D. 5.84%

95	As per Indian Road Congress (IRC) recommendation, minimum radius of horizontal curve on urban roads in plain terrain when the design speed is 60 km/h and super elevation is limited to 7% is A. 130 m B.125 m C.120 m D.135 m
96	Pile foundations are generally preferred for A. bridge foundations B. runways C. residential buildings D. sky scrapper buildings
97	Castigliano's first theorem is applicable for A. For statically determine structures only B. When the system behaves elastically C. Only when principle of superposition is valid D. None of the above
98	Effluent from a wastewater treatment plant (flow rate=8640m^3/d, temperature =25^{0}c) is discharge to a surface stream (flow rate=1.2m^3/s, temperature=15^{0}c). What is the temperature of stream after mixing? A. 10^{0}c B. 15.77^{0}c C. 20^{0}c D. 24.77^{0}c
99	Displacement pump is classified on the basis of _____ A. Mechanical operation of principle B. Type of power C. Type of service D. Efficiency
100	What is the type of filter used in the septic tank when the rate of percolation is 90 minutes? A. Biological filter B. Rapid sand filter C. Slow sand filter D. Trickling filter

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